

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Additional Spectrum for Unlicensed Devices
Below 900MHz and in the 3GHz Band

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ET Docket No. 02-380

COMMENTS OF THE BLUETOOTH SIG

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The Bluetooth Special Interest Group, Inc. (“Bluetooth SIG”), representing more than 2400 companies participating in the development, manufacture or sale of Bluetooth-enabled devices, appreciates this opportunity to comment on the Commission’s inquiry into the allocation of additional spectrum for unlicensed devices below 900 MHz and in the 3 GHz band. The Commission’s continuing commitment to make available new spectrum to unlicensed devices and to eliminate unnecessary regulatory barriers has provided the fuel for the increasingly important role that unlicensed devices play in the lives of individuals and businesses. The Bluetooth SIG asks only that the Commission continue to foster innovation in the future, as it has in the past.

The Bluetooth SIG urges the Commission to continue to make new spectrum available for unlicensed devices. Access to this spectrum should be governed by rules that not only allow but also facilitate the coexistence of a variety of radio solutions. Because of varying uses of adjacent radio channels, successful coexistence of low power unlicensed radios may require some rule differences for the bands below 900 MHz. But these differences should not deter the

Commission – there is nothing wrong with having more than one flavor of unlicensed wireless services.

The Bluetooth SIG also believes it is increasingly important that the Commission work toward worldwide harmonization of unlicensed spectrum. The harmonization of the 2.4 GHz band has been one of the most important but least discussed factors in the success of the standards operating in the band.

I. THE BLUETOOTH SIG AND THE BLUETOOTH STANDARD

The Bluetooth SIG is an association of companies that oversees the development of the Bluetooth standard. It is sponsored by IBM, Intel, Microsoft, Motorola, Lucent, 3Com, Ericsson, Nokia, and Toshiba, and has more than 2400 other member companies. The Bluetooth SIG oversees standards development committees, standards compliance testing, and global promotion of the standard.

The existing Bluetooth communications standard enables the low-cost, low-power wireless transmission of data and voice packets at speeds up to 1 Mbps, across distances up to 100 meters. Bluetooth-enabled devices are being sold in enormous quantities worldwide. More than 28 million Bluetooth chip sets were shipped last year alone. The technology is used to establish wireless connections among mobile phones, headsets, and speakerphones, for greater safety and convenience while driving. It is used for cordless connections among computers and printers and keyboards. And it is used to create wireless networks among laptops, and to allow wireless networking from laptops to the Internet via a cell phone or access point. It is also being used for synchronizing a variety of communications devices, such as cell phones, laptops, personal digital assistants and industrial devices, such as bar code readers in package handling systems.

II. DEMAND FOR UNLICENSED SPECTRUM CONTINUES TO INCREASE

The current sales success of Bluetooth-enabled products is a strong indicator of the growth in demand for unlicensed spectrum. And the growth of sales is astonishingly rapid. Bluetooth-enabled product sales are expected to reach one billion units worldwide in just four years.

This explosion stimulates additional demand for the existing spectrum, and Bluetooth's success prompts further innovation. Increased usage will inevitably result in spectrum congestion, and the Bluetooth SIG believes that the demand for unlicensed spectrum cannot be met by the current bands alone. The Commission exercised foresight when it made the 2.4 GHz band available in 1990. It must continue to anticipate and prepare for future demand, which by all indications is growing at an exponential rate.

III. TECHNICAL RULES SHOULD ENCOURAGE THE COEXISTENCE OF MULTIPLE USERS

The rules governing the 2.4 GHz ISM band help maximize spectrum use and minimize interference. The rules are based on the use of spread spectrum technology, which permits the development of devices with low interference potential and robust resistance to interference from other devices – keys to coexistence. For example, spread spectrum technology and the Commission's flexible technical rules enabled the development of robust frequency-hopping Bluetooth-type radios, which have defined the standard for balancing throughput and robustness at low power and low cost. The Bluetooth SIG believes that the Commission struck an appropriate balance between technical flexibility and interference mitigation in the 2.4 GHz band. It should seek to achieve similar, even if not identical, balances in future bands allocated for use by unlicensed devices.

Establishing similar, flexible rules for the new license-exempt bands will also allow backward compatibility with existing standards in the current license-exempt bands, thereby easing the barriers to the deployment of new devices. Of course, due to differences in the uses of adjacent bands, the Commission will need to consider modifications to the rules for the bands below 900 MHz. Close proximity to high power broadcast transmitters below 900 MHz will clearly affect potential interference rules. Even so, the Bluetooth SIG urges the Commission to adopt a flexible technical framework, including provisions for spread spectrum technology, that is designed to facilitate adjacent band sharing without overly constraining technical solutions or the ability to transfer successful existing technology to new bands. In addition, because Bluetooth-enabled products are used in a variety of devices – including devices with other radios, such as cellular phones – appropriate regulations reflecting advances in interference mitigation will be essential to continue the prevailing trend of increasing coexistence performance at continually lower prices to the end-user.

IV. WORLDWIDE HARMONIZATION IS IMPORTANT TO ISM BAND DEVELOPMENT

Bluetooth-enabled products have stirred excitement among users and generated corresponding hopes among manufacturers because of the potential for worldwide sales and deployment. The harmonization of worldwide regulatory requirements is still under way in the 2.4 GHz band, though it has passed the critical threshold, permitting Bluetooth-enabled products to be sold and used in most nations around the world.¹ It appears that a similar harmonization may take place at 5 GHz.

¹ There are still some notable exceptions, which indicate the continuing need for the Commission to advocate for worldwide harmonization.

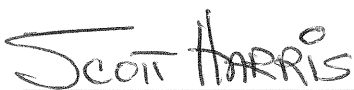
The Commission should embrace a policy supporting harmonization of spectrum allocations for unlicensed devices – whether or not they are “underlay” allocations. Such a policy bolsters manufacturers’ confidence in their ability to sell products worldwide, which in turn justifies their investment in new design and innovation. Harmonization of regulations goes hand in hand with these requirements. Advances in radio design which enable single semiconductor devices to process wide or multiple frequency bands give the industry some leeway in using bands with minor variations internationally, provided the regulatory regimes are compatible.

V. CONCLUSION

The Commission’s flexible approach toward regulation of the 2.4 GHz band has enabled the industry to develop innovative technologies for an astonishing array of devices providing local wireless connectivity. What is more, this progressive approach *continues* to attract investment in technologies designed for these bands – a remarkable fact given the challenges faced by the high technology and telecommunications sectors since the commercial introduction of Bluetooth technology. The price of this success is the continuing need for the Commission to make available new spectrum, to apply regulation of these bands to allow maximum coexistence with other devices, and to advocate worldwide harmonization of unlicensed bands. The proven success of the 2.4 GHz license-exempt band, its spread spectrum rules, and its worldwide acceptance are the epitome of successful policies for the creation and regulation of unlicensed spectrum. These policies should serve as the Commission’s roadmap as it proceeds with allocating new spectrum for unlicensed devices.

Respectfully submitted,

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